

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number
WO 2005/096099 A3

(51) International Patent Classification:
G03F 7/20 (2006.01) H05G 2/00 (2006.01)

(21) International Application Number:
PCT/IB2005/050941

(22) International Filing Date: 18 March 2005 (18.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
04101311.1 31 March 2004 (31.03.2004) EP

(71) Applicant (for DE only): PHILIPS INTELLECTUAL
PROPERTY & STANDARDS GMBH [DE/DE]; Stein-
damm 94, 20099 Hamburg (DE).

(71) Applicant (for all designated States except DE, US):
KONINKLIJKE PHILIPS ELECTRONICS N. V.
[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven
(NL).

(71) Applicant (for all designated States except US): ASML
NETHERLANDS BV [NL/NL]; De Run 6501, NL-5504
DR Veldhoven (NL).

(72) Inventors; and

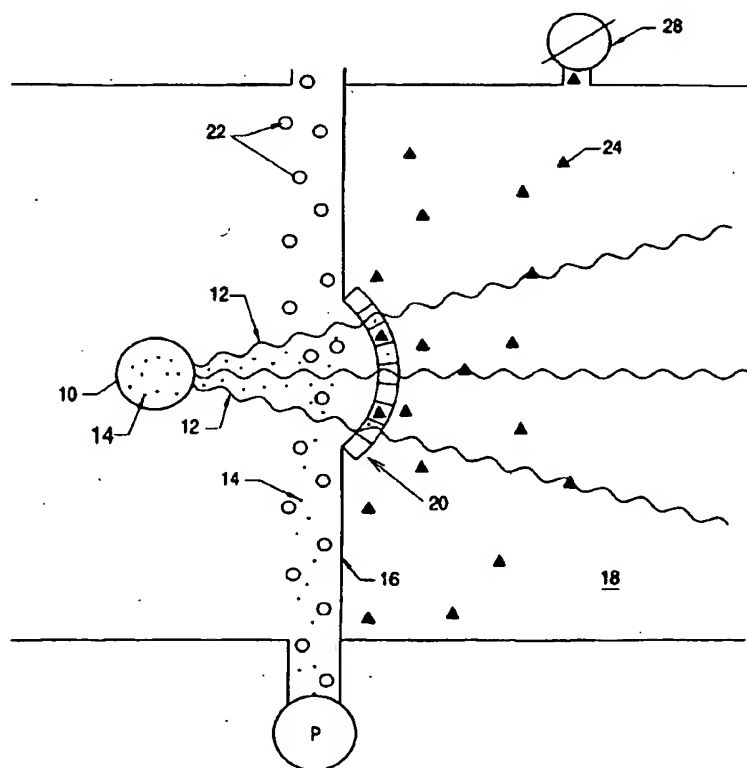
(75) Inventors/Applicants (for US only): JONKERS, Jeroen
[NL/DE]; c/o Philips Intellectual Property &, Standards
GmbH, Weissshausstr. 2, 52066 Aachen (DE). BAKKER,
Levinus, Pieter [NL/DE]; c/o Philips Intellectual Prop-
erty &, Standards GmbH, Weissshausstr. 2, 52066 Aachen
(DE). SCHUURMANS, Frank, Jeroen, Pieter [NL/DE];
c/o Philips Intellectual Property &, Standards GmbH, Weis-
shausstr. 2, 52066 Aachen (DE).

(74) Agent: VOLMER, Georg; Philips Intellectual Property
&, Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,

[Continued on next page]

(54) Title: REMOVAL OF PARTICLES GENERATED BY A RADIATION SOURCE



(57) Abstract: A method for removing contaminant particles (14), such as atoms, molecules, clusters, ions, and the like, produced by means of a radiation source (10) during generation of short-wave radiation (12) having a wavelength of up to approximately 20 nm, by means of a first gas (22) guided at high mass throughput between the radiation source (10) and a particle trap (20) arranged in a wall (16) of a mirror chamber (18) is described that can be used for a lithography device or a microscope. In order to protect an optical device and/or articles to be irradiated against contamination, the method is designed such that a second gas (24) is introduced into the mirror chamber (18) and its pressure is adjusted such that it is at least as high as the pressure of the first gas (22).

WO 2005/096099 A3



TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA, ZM, ZW.

- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

30 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.